

ADDITIONAL NOTES ON THE ERIOCAULACEAE. LXXIV

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SYNGONANTHUS CIRCINNATUS (Bong.) Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 429--430 & 443. 1977.

SYNGONANTHUS COMPACTUS Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 431 (1977) and 36: 33. 1977.

SYNGONANTHUS DECORUS Moldenke

Additional bibliography: Hocking, *Excerpt. Bot. A.* 28: 259. 1976; Moldenke, *Phytologia* 35: 435. 1977.

SYNGONANTHUS DENSIFOLIUS Alv. Silv.

Additional bibliography: Moldenke, *Phytologia* 35: 438--440 & 456, 1977.

SYNGONANTHUS DENSUS (Körn.) Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 440--441 (1977) and 36: 35. 1977.

Additional citations: BRAZIL: Amazônas: Prance, Berg, Bisby, Steward, Monteiro, & Ramos 17932 (N).

SYNGONANTHUS DROUETII L. B. Sm.

Additional bibliography: Moldenke, *Phytologia* 35: 441--442 (1977) and 36: 45. 1977.

SYNGONANTHUS ELEGANS (Bong.) Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 444--448 (1977) and 36: 76. 1977.

SYNGONANTHUS ELEGANS var. *ELANATUS* Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 445--448. 1977.

The Glaziou 20013 cited by Ruhland as a cotype of this variety is the type collection of S. elegantulus var. glaziovii Moldenke. The Glaziou 16398 and Duarte 7569 [Herb. Brad. 27315], also previously cited by me as S. elegans var. elanatus, seem better placed as S. elegantulus var. glaziovii.

SYNGONANTHUS ELEGANTULUS Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 446--449 & 456 (1977) and 36: 35. 1977.

Monteiro has encountered this plant growing on quartzite.

Additional citations: BRAZIL: Minas Gerais: Monteiro de S. 235 [Vianna 396; Herb. FEEMA 8085] (Ld), s.n. [Herb. FEEMA 6716]

(Id).

SYNGONANTHUS ELEGANTULUS var. GLAZIOVII Moldenke, *Phytologia* 36: 35, June 18 (1977) & 36: 116. June 23. 1977.

Bibliography: Moldenke, *Phytologia* 36: 35 & 116. 1977.

Material of this variety has mistakenly been distributed in some herbaria as Paepalanthus elegans Kunth, Syngonanthus elegans var. elanatus Ruhl., S. niveus Ruhl., or (in the case of Glaziou 16398) as Paepalanthus sp. nov.; Glaziou 20013 was regarded by Ruhland (1903) as a cotype of his S. elegans var. elanatus; both Glaziou collections were cited by me in a previous installment of these notes as S. elegans var. elanatus, a taxon which they closely resemble.

Citations: BRAZIL: Minas Gerais: Glaziou 16398 (N), 20013 (Br— isotype, C—type); Monteiro de S. s.n. [19.XII.1971] (Z).

SYNGONANTHUS FERTILIS (Körn.) Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 452—453 (1977) and 36: 35. 1977.

SYNGONANTHUS FISCHERIANUS (Bong.) Ruhl.

Additional synonymy: Eriocaulon nardifolium "Kunth ex Moldenke" apud Moldenke & Sm. in Reitz, *Fl. Ilus. Catar. I Erio*: 99, in syn. 1976. Paepalanthus vaginatus "Mart. ex Moldenke" apud Moldenke & Sm. in Reitz, *Fl. Ilus. Catar. I Erio*: 102, in syn. 1976.

Additional bibliography: Moldenke & Sm. in Reitz, *Fl. Ilus. Catar. I Erio*: 62, 63, 77, 80—83, & 98—103, pl. 8, fig. 32—39. 1976; Moldenke, *Phytologia* 35: 454—456 (1977) and 36: 56 & 78—80. 1977.

Illustrations: Moldenke & Sm. in Reitz, *Fl. Ilus. Catar. I Erio*: 63, pl. 8, fig. 32—39. 1976.

Vernacular names reported for this species are "capim-manso", "capipoatinga-de-fischer", "gravatá-manso", and "sempre-viva-do-campo" and it is said to flower in December and January in southern Brazil.

SYNGONANTHUS FLAVIDULUS (Michx.) Ruhl.

Additional bibliography: Moldenke, *Phytologia* 36: 54—60, 487, & 493 (1977) and 37: 24. 1977.

SYNGONANTHUS FUSCESCENS Ruhl.

Additional bibliography: Monteiro-Scanavacca & Mazzoni, *Bol. Bot. Univ. S. Paulo* 4: [23], 24, & 26. 1976; Moldenke, *Phytologia* 36: 61—62. 1977.

Monteiro-Scanavacca & Mazzoni (1976) report that there is no vegetative reproduction from the apex of the inflorescence in this species, citing Monteiro-Scanavacca 4302 from Minas Gerais, Brazil.

SYNGONANTHUS GLANDULOSUS Gleason

Additional bibliography: Moldenke, *Phytologia* 36: 35, 36, 63—

66, 74, & 76. 1977.

SYNGONANTHUS GRACILIS var *KOERNICKEANUS* Ruhl.

Additional bibliography: Moldenke, *Phytologia* 36: 72, 73, 75, & 83—85. 1977.

Ruhland (1903) describes this variety as "Differt foliis semper recurvato-caespitosis vel subrosulatis, nigro-olivaceis vel olivaceo-glauciscentibus, appresso-puberulis, serius glabriusculis, plerumque fere 2 cm longis; vaginis arctissimis, folia adaequantibus vel superantibus, patentissime glanduloso-puberulis, dein calvis, plus minus perspicue costato-striatis; pedunculis 3 costatis, saepe tortis, subaequaliter puberulis, 7—22 cm altis; bracteis involucrentibus naviculari-imbricatis, exterioribus brevioribus, rotundato-obtusis, interioribus obovatis vel oblongo-obovatis, acutiusculis vel obtusiusculis, flores includentibus, omnibus glabris et nitide aureo-stramineis." He cites the following Brazilian specimens: Bahia: Salzmann s.n., Sellow 626. Goiás: Burchell 6917. Maranhão: Schwacke 686. Minas Gerais: Sena s.n. [Herb. Schwacke 12827]. Rio de Janeiro: Riedel 557, Sellow s.n. São Paulo: Riedel 2304.

Körnigke's *Paepalanthus gracilis* var. β subvar. α is based on Luschnath s.n. [inter Macagé et Campos], Riedel 557 in part, Sellow s.n. [Rio de Janeiro] & s.n. [inter Vittoria et Bahia], and Weddell 552.

The *Limnoxeranthemum pubescens* Salzm., cited by Ruhland (1903) in the synonymy of *Syngonanthus gracilis* var. *koernickeanus*, is actually more correctly placed in that of *S. gracilis* var. *hirtellus* (Steud.) Ruhl., which see.

Recent collectors refer to *S. gracilis* var. *koernickeanus* as having "stems and leaves greenish-sericeous", with "crowded multiple rosettes of grass-green subcoriaceous leaves", the basal rosettes often nearly buried in sand, the sheaths brown, the bracts pale-yellow, and the flower-heads white. They have found it growing in savanna forests, in sandy places on savannas, in moist places, wet valleys, moist meadows, and white-sand grassland, in rich wet soil bordering springs on llanos, and along seepage in wet savannas, at altitudes of 100—1400 meters, flowering in January, May, June, August, September, October, and December, fruiting in August and October. Koyama & Oldenburger found it growing in association with *S. glandulosus*, *Philodice hoffmannseggii*, *Diplacrum africanum*, *Bacopa monierioides*, *Centunculus pentander*, *Polygala paludosa*, *Utricularia adpressa*, and *Eleocharis nana*. Kramer & Van Donselaar (1968) include it in what they call a *Syngonantho-Hyridion* alliance in Surinam, where they assert that it is "Not rare in open savannas and open woods".

Schulz & Poveda encountered *S. gracilis* var. *koernickeanus* in "el 'morichal abierto' - pastizal inundado a la temporada húmeda, con matos de *Mauritia minor* en las depresiones, horizonte super-

ficie del suelo rico en mater orgánico, con Panicum laxum, Paspalum spp., Xyris savanensis, Sauvagesia erecta, Polygala tintoutou, etc."

The Paepalanthus brizeoides Kunth, referred to in the synonymy of this taxon, is in part probably also a synonym of S. gracilis var. subinflatus Ruhl. according to Ruhland (1903). The material comprising Pabst 4612, cited below, is very immature.

The Angely (1972) work cited in the bibliography is often cited as "1970", the title-page date, but was not actually published until 1972.

Lindeman & Görts-van Rijn (1968) cite from Surinam: Hostmann 1066, Huk 61, Kramer & Hekking 2241, 2928, & 3081, Lanjouw 434, Lanjouw & Lindeman 860, Lindeman 128, 244, 307, 3013, 4228, & 4229, and Van Donselaar 738. Hostmann 1066, however, is a mixture with S. simplex (Miq.) Ruhl., of which it is the type collection and which I regard as a separate taxon. Lanjouw & Lindeman 860 is a mixture with typical S. gracilis (Bong.) Ruhl.

Silveira (1928) cites Silveira 516 from Diamantina, Minas Gerais, Brazil, collected in 1908.

Material of this variety has been misidentified and distributed in some herbaria under the designations Paepalanthus oxycnemis Mart., P. gracilis var. b subvar. ♀ Körn., P. gracilis var. ♂ Körn., Syngonanthus gracilis (Bong.) Ruhl., and S. gracilis var. setaceus Ruhl.

Additional citations: COLOMBIA: Vaupés: Schultes, Baker, & Cabrera 18093 (Z). Vichada: F. J. Hermann 11054 (N, W--1906224). VENEZUELA: Bolívar: Pannier & Schwabe 1777 (Ve); J. A. Steyermark 89686 (M1, N); Steyermark, Dunsterville, & Dunsterville 104231 (Ft); Steyermark & Nilsson 456 (M1), 638 (M1, N). Guárico: Guyon 112 (P); Schulz & Poveda 232 (Ut--320389). GUYANA: C. D. K. Cook 133 (K, S); Goodland & Persaud 1097 (Ld, W--2546170); Irwin 500 (W--2212838); Tutin 619 (Ut--39599A, W--1743628). SURINAM: Donselaar 3621 (Ut--320400); Hostmann 633 (Ut--411), 1066 in part (Ut--411); Huk 61 (Ut--31952); Lanjouw 434 (Ut--44053A); Lanjouw & Lindeman 128 (Ut--17892B), 244 (Ut--17896B), 860 in part (N, Ut--1789aB), 3013 (Ut--17891B), 3307 (Ut--17890B); Van Donselaar 738 (Ut--93607B). FRENCH GUIANA: Hoock 872 (P), s.n. [11 Aout 1962] (P). BRAZIL: Amapá: W. A. Egler 1427 [Herb. Mus. Goeldi 24583] (M1), 1444 [Herb. Mus. Goeldi 24599] (M1). Bahia: Belém 1682 (Ac); A. P. Duarte 6079 [Herb. Brad. 15444] (Lw); Sellow 626 (B--cotype). Maranhão: Murça Pires & Black 2198 (N). Pará: Froés 29358 (Z); Murça Pires & Silva 4263 (N); Sick s.n. [Pabst 4612] (Bd). Rio de Janeiro: L. Riedel 557 (B--cotype, B--cotype, B--cotype, Mu--cotype, Ut--404--cotype), 2305 (Ut--402); Segadas-Vianna, Dan, Ormond, Machline, & Lorêdo 943 (Ja); Sellow s.n. [inter Rio Janeiro et Campos, 1815] (B). Rondônia: Black & Cor-

deiro 52-14785 (Z). São Paulo: L. Riedel 2304 (B—cotype, Mu—cotype, Ut—403—cotype), s.n. [Batataes] (B). State undetermined: Herb. A. Gray s.n. (T).

SYNGONANTHUS GRACILIS var. LATIFOLIUS Moldenke, Phytologia 21: 418. 1971.

Bibliography: Moldenke, Phytologia 21: 418. 1971; Moldenke, Fifth Summ. 2: 962 & 968. 1971; Moldenke, Biol. Abstr. 53: 5252. 1972.

This variety differs from the typical form of the species and from all other described varieties of it in having its basal leaves very numerous, closely appressed to the ground, and uniformly about 2 mm. wide at the midpoint.

Citations: BRAZIL: Mato Grosso: Irwin, Grear, Souza, & Reis dos Santos 16349 (N—type).

SYNGONANTHUS GRACILIS var. LUETZELBURGII Herzog, Estud. Bot. Nordeste. Bras. 3 [Insp. Fed. Obras Secc. Publ. 57]: 149 & 151. 1923.

Bibliography: Herzog, Estud. Bot. Nordeste. Bras. 3 [Insp. Fed. Obras Secc. Publ. 57]: 149 & 151. 1923; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Résumé 107 & 492. 1959; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 962. 1971; Moldenke, Phytologia 31: 386. 1975.

This variety is obviously based on Lützelburg 283 from Vao do Faria, in southern Piauí, Brazil, where it is said to be typical of the "carrasco" formation, deposited in the Munich herbarium where it was photographed by Macbride as his type photograph number 18744. Macbride's photograph shows only the upper two of the three plants on the type sheet. The label avers that the locality of collection is in Bahia, but the Gray Herbarium's index cards refer it to Piauí and also claim that the original publication is a nomen nudum. Herzog, however, provides this formal description on the type sheet: "differt bracteis involucrantibus subacutis, pedunculis numerosissimis brevibus".

Citations: BRAZIL: Piauí [or Bahia?]: Lützelburg 283 [Macbride photos 18744] (Mu—type, N—photo of type, Z—photo of type).

SYNGONANTHUS GRACILIS var. PALLIDUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 240 [as "pallida"]. 1903; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946.

Synonymy: Syngonanthus gracilis var. pallida Ruhl. in Engl., Pflanzenreich 13 (4-30): 250. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 250 & 293. 1903; Herzog in Fedde, Repert. Spec. Nov. 29: 212. 1931; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Alph. List Cit. 4: 1076. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65, 92, & 213. 1949; Moldenke, Phytologia 4: 319. 1953; Moldenke, Résumé 73, 107, 352, & 492. 1959; Moldenke, Résumé Suppl. 1: 6. 1959; Moldenke, Fifth Summ. 1: 127 & 174

(1971) and 2: 637 & 962. 1971; Moldenke, *Phytologia* 36: 83. 1977.

This variety is based on Passarge & Selwyn 258 from "Venezuela: Gebiet des unteren Orinoko, sumpfige Wiesen am Sipao, Monte oscuro" and M. Guedes 603 from "Brasilianisches Guyana: am Rio Maracá". Ruhland (1903) describes it as "Differt foliis e basi vix vel non dilatata paullisper elongato-linearibus, subarrecto-caespitosis, 1-3-nerviis, acutiusculis, pilis brevissimis, appressis leviter puberulis, mox glabriusculis, ad 8 cm [probably a typographic error for "mm."] longis; vaginis erectis, arctis, pallide viridi-flavidulis, profunde striato-costatis, pilis sparsis, patentibus, eglandulosis, pubescenti-hirtis; pedunculis erectis, nitide stramineis, profunde 3 costatis, subrobustis, apicem versus pilis arrecto-patentibus, glanduliferis pubescentibus, 14-16 cm longis; bracteis involucrentibus pallide albospadiceis, obovatis, acutis, capitulum 4,5-5 mm latum perspicue includentibus." He comments that "Habitu quam antecedens [var. subinflatus Ruhl.] robustior." Herzog (1931) thinks that it may be identical with var. amazonicus Ruhl. It has been collected in anthesis in August, November, and December.

Additional citations: VENEZUELA: Bolívar: J. A. Steyermark 90387 (Z). BRAZIL: Piauí: Wachsmund s.n. (B).

SYNGONANTHUS GRACILIS f. PROLIFER Moldenke, *Phytologia* 22: 6. 1971.

Bibliography: Moldenke, Fifth Summ. 1: 174 (1971) and 2: 962. 1971; Moldenke, *Phytologia* 22: 6. 1971; Hocking, *Excerpt. Bot.* A.21: 30. 1972; Moldenke, *Biol. Abstr.* 54: 6295. 1972; Moldenke, *Phytologia* 31: 386. 1975.

This form differs from the typical form of the species in having its flower-heads distinctly proliferous, each producing from 3 to many linear leaf-like growths to 5 mm. in length. Anderson found it growing in open woods on rocky slopes and along streams, in wet mossy mats on rocks by streams, and similar places, at 1150 m. altitude, flowering and fruiting in April.

Citations: BRAZIL: Minas Gerais: W. R. Anderson 8873 (N); G. Gardner 5281 (N-type).

SYNGONANTHUS GRACILIS var. PULCHER Alv. *Silv., Fl. Mont.* 1: 347 [as "pulchra"]. 1928; Moldenke, *Known Geogr. Distrib. Erioc.* 18 & 58. 1946.

Synonymy: Syngonanthus gracilis var. pulchra Alv. *Silv., Fl. Mont.* 1: 347. 1928.

Bibliography: Alv. *Silv., Fl. Mont.* 1: 347 & 418. 1928; Moldenke, *Known Geogr. Distrib. Erioc.* 18 & 58. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 92 & 213. 1949; Moldenke, *Résumé* 107, 352, & 492. 1959; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 637 & 962. 1971.

This variety is based on A. Silveira 716 from "In campis inter Serrinha et Itacambira", Minas Gerais, Brazil, collected in July, 1926, and deposited in the Silveira herbarium. On page

418 of his work (1928) Silveira gives Itacambira as the type locality. He describes the variety as "Foliis supra appresso-pubescentia, subtus glabra, 6—12 mm longa, 0.5 mm medio lata. Pedunculi numerosi, filiformes virides, dense pilis glanduliferis obsiti, 3—8 cm alti, 3-costati, non vel paullo torti vaginae oblique fissae ut pedunculos pubescentes 6—10 mm elatae. Capitula 2 mm lata, pallide albo-flavida. Bracteae involucrentes obovatae rotundato-obtusae, flores claudentes." Thus far it is known only from the original collection.

SYNGONANTHUS GRACILIS var. *RECURVIFOLIUS* Ruhl. in Engl., Pflanzenreich 13 (4-30): 252 [as "recurvifolia"]. 1903; Moldenke, Known Geogr. Distrib. Erioc. 16 & 58. 1946.

Synonymy: *Syngonanthus gracilis* var. *recurvifolia* Ruhl. in Engl., Pflanzenreich 13 (4-30): 252. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 252 & 293. 1903; Herzog in Fedde, Repert. Spec. Nov. 29: 212. 1931; Moldenke, Known Geogr. Distrib. Erioc. 6, 18, & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65, 92, & 213. 1949; Moldenke, Résumé 73, 107, 352, & 492. 1959; Moldenke, Fifth Summ. 1: 127 & 174 (1971) and 2: 637 & 963. 1971; Moldenke, Phytologia 36: 79 & 83. 1977.

This variety is based on Passarge & Selwyn 81 from "Gebiet des unteren Orinoko, Savanne bei S. Lucia, auf abgebranntem Grasland" in Venezuela and W. Schwacke 4084 from "Amazonasgebiet; Cachoeira grande am Rio Negro bei Manáos" in Brazil, both deposited in the Berlin herbarium. Ruhl. (1903) describes the variety as "Differt foliis brevissimis, recurvato-rosulatis, angustissime linearibus, obtusiusculis, atro-olivaceis, appresso-puberulis, mox calvescentibus, modo 5—6 mm longis; vaginis folia multiplo superantibus, arctissimis, lamina appressa, apice obtusiuscula praeditis, torto-striatulis, brunneolis, persistenter patentihirtellis, 2 cm longis; pedunculis gracillimis, 3 costatis, valde tortis, splendido subolivaceo-flavidis usque 14 cm altis; capitulis parvis, apertis, vix 2 mm latis, plerumque opacis; bracteis involucrentibus concavis, ovatis, imbricatis, rotundato-obtusis, flores vix adaequantibus, non vel vix nitidulis."

It has been collected in anthesis in December. Material has been misidentified and distributed in some herbaria under the designation *Paepalanthus hirtellus* var. ♀ Körn.

Citations: BRAZIL: State undetermined: J. E. Pohl s.n. [Brasilia] (Mu).

SYNGONANTHUS GRACILIS var. *SETACEUS* Ruhl. in Engl., Pflanzenreich 13 (4-30): 252 [as "setacea"]. 1903; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946.

Synonymy: *Paepalanthus oxycnemis* Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 461, in syn. 1863. *Paepalanthus gracilis* var. ♀ subvar. ♀ Körn. in Mart., Fl. Bras. 3 (1): 461—463. 1863. *Paepalanthus gracilis* var. b. subvar. ♀ Körn. apud Ruhl. in Engl.,

Pflanzenreich 13 (4-30): 252, in syn. 1903. Paepalanthus gracilis var. b var. ♀ Körn. apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 290, in syn. 1903. Syngonanthus gracilis var. setacea Ruhl. in Engl., Pflanzenreich 13 (4-30): 252. 1903. Syngonanthus gracilis setacea Ruhl. ex Moldenke, Résumé Suppl. 12: 12, in syn. 1965.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 461--463. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 252, 290, & 293. 1903; Alv. Silv., Fl. Mont. 1: 418. 1928; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 18, 49, 52, & 58. 1946; Moldenke, Phytologia 2: 492. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Phytologia 4: 319. 1953; Moldenke, Résumé 107, 325, 327, 352, & 492. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 12: 5 & 12. 1965; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 583, 587, 637, & 963. 1971; Moldenke, Phytologia 34: 276 (1976) and 36: 73, 75, & 78. 1977.

This variety is based on Martius 557 from Campos, Rio de Janeiro, and Glaziou 14359 from Cabo Frio in the same state, deposited in the Berlin herbarium. Ruhl. (1903) describes it as "Differt foliis arrecto-caespitosis, setaceo-linearibus, longiusculis, acutangulis, obtusiusculis, juvenute pilis brevibus aspersis, mox glabriusculis, in sicco atro-olivaceis vel spadiceo-brunneis, 2--2,5 cm longis; vaginis folia vix adaequantibus, arctis, subtiliter striatis, pilis glanduliferis patenti-puberulis; pedunculis erectis, gracillimis, tortis, 3 costatis, sparse glandulifero-puberulis, circ. 14 cm altis; capitulis subglobosis, semi-apertis, demum circ. 3 mm latis; bracteis involucrentibus flores perspicue superantibus, interioribus acutiusculis, omnibus obovatis, glabris, nitide stramineo-flavidis, concavis."

Körn. & Riedel's Paepalanthus gracilis var. ♀ subvar. ♀ is based on Luschnath s.n. [Campos Bravos] and Riedel 557 in part [inter Macahé et Campos].

Recent collectors have encountered this plant in "bare spots in shrubby restinga", flowering in September. Silveira (1928) cites A. Silveira 603 from Bahia, collected in 1912.

Additional citations: BRAZIL: Guanabara: B. Lutz 602 (Ja--24576, Ja--113694, Ja, W--1593789). Rio de Janeiro: Segadas-Vianna, Dau, Ormond, Machline, & Lorêdo 943 (Z). MOUNTED ILLUSTRATIONS: drawings & notes by Körnicke (B).

SYNGONANTHUS GRACILIS var. SUBINFLATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 250 [as "subinflata"]. 1903; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946.

Synonymy: Paepalanthus brizoides Kunth, Emm. Fl. 3: 534, in part. 1841. Paepalanthus gracilis var. ♂ subvar. ♂ Körn. in

Mart., Fl. Bras. 3 (1): 460—463. 1863. Paepalanthus gracilis var. a subvar. α Körn. apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 250 & 290, in syn. 1903. Paepalanthus gracilis var. a var. α Körn. apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 290, in syn. 1903. Syngonanthus gracilis var. subinflata Ruhl. in Engl., Pflanzenreich 13 (4-30): 250. 1903.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 460—463. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 250, 290, & 293. 1903; Moldenke, Known Geogr. Distrib. Erioc. 18, 49, & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Résumé 107, 325, 352, & 492. 1959; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 583, 637, & 963. 1971; Moldenke, Phytologia 34: 275 & 276 (1976) and 36: 73 & 83. 1977.

This variety is based on A. Silveira 865 from "an feuchten Stellen in der Serra do Lenheiro", Minas Gerais, Brazil, deposited in the Berlin herbarium. Ruhl. (1903) describes it as "Differt bracteis involucrentibus spadiceo-brunneis, rotundato-obtusis, glabris, capitulum perspicue superantibus et subincludentibus; pedunculis perspicue 3 costatis, stramineo-flavidis, pilis arrecto-patentibus, eglandulosis, praesertim apice subdense et persistenter pilosis, ad 11 cm longis; vaginis laxiusculis, virescentibus, striatis, pilis squarroso-patentibus, glanduliferis hirtis, 3 cm longis; foliis valde repressis, fere rosulatis, viridibus, obtusiusculis, levissime puberulis, 6—7 mm longis." Thus far it is known only from the original collection which was collected in anthesis in April.

Körn. & Ruhl. based Paepalanthus gracilis var. α subvar. α was based by him on Salzmann s.n. from Bahia (but he cited another Salzmann s.n. from Bahia under his P. gracilis var. c).

Ruhl. (1903) cites Eriocaulon brizoides Kunth, Enum. Pl. 3: 534 (1841) as questionably belonging [in part?] in the synonymy of this variety, but he also regards it as questionably [in part] var. koernickeanus Ruhl. In previous publications I have regarded it as in part typical S. gracilis, but this seems to be incorrect. For some reason unknown to me he dates Kunth's work "1840".

SYNGONANTHUS GRACILIS var. TENUISSIMUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 250 [as "temissima"]. 1903; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946.

Synonymy: Syngonanthus gracilis var. temissima Ruhl. in Engl., Pflanzenreich 13 (4-30): 250. 1903. Syngonanthus gracilis temissima Ruhl. ex Moldenke, Résumé Suppl. 12: 12, in syn.. 1965.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 250 & 293. 1903; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Phytologia 4: 319. 1953; Moldenke, Résumé 107, 352, & 492. 1959; Moldenke, Résumé Suppl. 12: 12. 1965; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 637 & 963. 1971; Moldenke, Phytologia 29: 211 (1974), 30: 37 (1975), 31: 386 (1975), and 36:

83. 1977.

This variety is based on Regnell III.1266 and III.1801 from Caldas, Minas Gerais, Brazil, deposited in the Berlin herbarium. Ruhland (1903) describes it as "Differt foliis plus mimis erecto-distantibus, caespitosis, e basi dilatata setaceo-linearibus, obtusiusculis, raro subrecurvatis, pilis brevibus irregulariter subappressis, puberulis, 3—4 mm longis; pedunculis 10—12 cm longis; vaginis folia longe superantibus, ut folia pilosis; pedunculis primo intuitu teretibus, costulis vix vel non conspicuis, tenuissimis, stramineo-flavidis, apicem versus interdum sparse puberulis; bracteis involucrentibus obovatis, pallide aureis, plerumque perspicue acutiusculis, capitulum includentibus."

Recent collectors have encountered this plant on moist campos, flowering in May, July, and August. Material has been misidentified and distributed in some herbaria as S. gracilis var. recurvifolia Ruhl. Lützelburg 20687 is a mixture with Eriocaulon neglectum Ruhl. and Paepalanthus lamarckii Kunth.

Additional citations: BRAZIL: Amazonas: Lützelburg 20687 in part (Mu). Minas Gerais: Lützelburg 20938 (Mu, Z); Regnell III.1266 [1/1848] (W—200757—cotype, Z--cotype), III.1266 [5/4/1870] (W--936258—cotype).

SYNGONANTHUS GRAO-MOGOLENSIS Alv. Silv., Fl. Mont. 1: 342—343, pl. 216. 1928.

Synonymy: Syngonanthus grão-mogolensis Alv. Silv., Fl. Mont. pl. 216. 1928. Syngonanthus grao-nogolensis Alv. Silv. ex Moldenke, Résumé Suppl. 18: 14, in syn. 1969.

Bibliography: Alv. Silv., Fl. Mont. 1: 342—343 & 418, pl. 216. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 478. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Phytologia 2: 493 & 498. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Résumé 107, 352, & 492. 1959; Moldenke, Résumé Suppl. 18: 14. 1969; Moldenke, Phytologia 20: 80. 1970; Anon., Biol. Abstr. 52 (3): B.A. S.I.C. S.228. 1971; Moldenke, Biol. Abstr. 52: 1316. 1971; Moldenke, Excerpt. Bot. A.18: 445. 1971; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 637 & 963. 1971; Moldenke, Phytologia 34: 277. 1976.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 216. 1928.

This species is based on A. Silveira 842 from "In campis arenosis humidisque secus margines fluminis Iracambirassu, prope Grão Mogol", Minas Gerais, Brazil, collected in July, 1926, and deposited in the Silveira herbarium.

Citations: BRAZIL: Pará: Castro Soares s.n. [Herb. Rio Jan. 86788] (N).

SYNGONANTHUS GRAO-MOGOLENSIS var. DETONSUS Moldenke, Phytologia 20: 80 [as "grão-mogolensis"]. 1970.

Synonymy: Syngonanthus grão-mogolensis var. detonsus Moldenke,

Phytologia 20: 80. 1970.

Bibliography: Moldenke, Phytologia 20: 80. 1970; Anon. Biol. Abstr. 52 (3): B.A.S.I.C. S.228. 1971; Moldenke, Biol. Abstr. 52: 1316. 1971; Moldenke, Excerpt. Bot. A.18: 445. 1971; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 637 & 963. 1971; Moldenke, Phytologia 34: 277. 1976.

Citations: BRAZIL: Minas Gerais: Irwin, Reis dos Santos, Souza, & Fonseca 23354 (N-isotype, Z--type).

SYNGONANTHUS GUIANENSIS Moldenke, Phytologia 2: 352 & 381, nom. nud. 1947; in Maguire & al., Bull. Torrey Bot. Club 75: 201--302. 1948.

Bibliography: Moldenke, Phytologia 2: 352 & 381. 1947; Moldenke in Maguire & al., Bull. Torrey Bot. Club 75: 201--202. 1948; Moldenke, Alph. List Cit. 3: 701. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 67 & 213. 1949; E. J. Salisb., Ind. Kew. Suppl. 11: 244. 1953; Moldenke, Résumé 76, 419, & 492. 1959; Moldenke, Fifth Summ. 1: 131 (1971) and 2: 778 & 963. 1971.

This species is based on Maguire & Fanshawe 23236 from the Kaieteur Savanna, Guyana, collected on May 4, 1944, and deposited in the Britton Herbarium at the New York Botanical Garden. The collectors describe it as a locally frequent, annual, short-stemmed herb with canescent leaves. Superficially it greatly resembles Elastocaulon rupestre (G. Gardn.) Ruhl. of Minas Gerais, Brazil.

Citations: GUYANA: Maguire & Fanshawe 23182 (N), 23236 (N--type).

SYNGONANTHUS HABROPHYUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 274. 1903.

Synonymy: Syngonanthus habrophyllus Ruhl. ex Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 242. 1956. Paepalanthus habrophyus Ruhl. ex Moldenke, Résumé Suppl. 1: 20, in syn. 1959. Syngonanthus habraphys Ruhl. ex Moldenke, Résumé Suppl. 12: 12, in syn. 1965.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 271, 274, & 293. 1903; Ruhl., Verh. Bot. Ver. Brand. 48: 130. 1907; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 418, 1928; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Phytologia 2: 493. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Phytologia 4: 320. 1953; Mendes Magalhães, Anais V. Reun. Anual Soc. Bot. Bras. 242--243. 1956; Moldenke, Résumé 107 & 492. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 3: 35 (1962) and 12: 12. 1965; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 584, 637, & 963. 1971.

This species is based on Glaziou 6449 from dry sand near the sea at Restinga de Tijuca, Rio de Janeiro, Brazil, deposited in the Berlin herbarium where it was photographed by Macbride as

his type photograph number 10687. Recent collectors have found it growing on bare ground of shrubby restinga between shrubs and trees, forming colonies, and ascending from about sealevel to 1200 m. altitude, flowering from January to September, and fruiting in February and July. Silveira (1928) cites A. Silveira 541 from the Serra de Ibitipoca, Minas Gerais, collected in 1895. Ruhland (1903) asserts that the species is related to S. ulei Ruhl.

The Segadas-Vianna, Dau, Ormond, Machline, & Lorêdo I.940, distributed as S. habrophyus, actually is S. nitidus (Bong.) Ruhl., while Mexia 5734 is S. niveus var. rosulatus (Körn.) Moldenke and Brade 11004 and Mello Barreto 4794 [Herb. Jard. Bot. Belo Horiz. 17534] are S. pauper Ruhl.

Additional citations: BRAZIL: Minas Gerais: Héringer & Castellanos 6173 (B); Mello Barreto 25853 (N); Segadas-Vianna 6007 (Sm). Rio de Janeiro: Glaziov 6449 [Macbride photos 10687] (B—type, N—iso-type, N—photo of type, W—photo of type, Z—iso-type); Segadas-Vianna, Dau, Ormond, Machline, & Larêdo 149 (Ja), 374 (Sm).

SYNGONANTHUS HARLEYI Moldenke, Phytologia 31: 489—491. 1975.

Bibliography: Moldenke, Phytologia 31: 386 & 489—491. 1975; Anon., Biol. Abstr. 61: ACl.718. 1976.

Illustrations: Moldenke, Phytologia 31: 491. 1975.

Citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 16662 (Z—type).

SYNGONANTHUS HATSCHBACHII Moldenke (in press)

Citations: BRAZIL: Bahia: Hatschbach 39668 (Z—type).

SYNGONANTHUS HELMINTHORRHIZUS (Mart.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 261. 1903.

Synonymy: Eriocaulon umbellatum Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 633. 1831 [not E. umbellatum Humb., 1826, nor Humb. & Bonpl., 1817, nor H.B.K., 1817, nor Humb. & Kunth, 1852, nor Kunth, 1841 & 1852, nor Lam., 1789]. Paepalanthus helminthorrhizus Mart. ex Körn. in Mart., Fl. Bras. 3 (1): 443—444, pl. 60, fig. 4. 1863. Paepalanthus helminthorrhizus var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 443—444. 1863. Paepalanthus helminthorrhizus var. ♀ Körn. in Mart., Fl. Bras. 3 (1): 443—444. 1863. Paepalanthus (Andraspidopsis) helminthorrhizus Körn. in Mart., Fl. Bras. 3 (1): pl. 60, fig. 4. 1863. Dupatya helminthorhiza (Mart.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya helminthorhiza Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145, in syn. 1902. Dupatya helminthorhiza Kuntze apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 261, in syn. 1903. Syngonanthus helminthorrhizus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus helminthorrhizus "(Martius) ex Koer-

nicke Ruhland in Engler" apud Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 6: 1162. 1972.

Bibliography: Bong., Ess. Monog. Erioc. 3. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 633. 1831; Körn. in Mart., Fl. Bras. 3 (1): 443—444, 451, 502, & 507, pl. 60, fig. 4. 1863; Kuntze, Rev. Gen. Fl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 879 (1893) and imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 3, 246, 261, 264, 287, 290, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 418. 1928; Stapf, Ind. Lond. 4: 518. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Alph. List Cit. 1: 56, 303, & 304. 1946; Moldenke, Known Geogr. Distrib. Erioc. 18, 30, 41, 49, & 58. 1946; Moldenke, Phytologia 2: 498. 1948; Moldenke, Alph. List Cit. 3: 951 (1949) and 4: 1301 & 1304. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Phytologia 4: 320. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 107, 117, 280, 293, 325, 351, 352, & 492. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 879 (1960) and imp. 3, 2: 402. 1960; Renné, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 3: 35. 1962; Hocking, Excerpt. Bot. A.9: 290. 1965; Moldenke, Biol. Abstr. 46: 3616. 1965; Moldenke, Résumé Suppl. 18: 9. 1969; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 158. 1969; Moldenke, Fifth Summ. 1: 174, 187, & 481 (1971) and 2: 515, 584, 636, 637, & 963. 1971; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 6: 1162 & Ind. 20 & 28. 1972; Moldenke, Phytologia 23: 418 (1972), 28: 463 (1974), 31: 408 (1975), and 34: 276. 1976.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 60, fig. 4. 1863.

This species is apparently based on an unnumbered Riedel collection from swampy places along the Rio Pardo, Mato Grosso, Brazil, deposited in the Leningrad herbarium, the type of Eriocaulon umbellatum Bong. (1831). Körnicke (1863), in adopting Martius' cheironymous name, Paepalanthus helminthorrhizus, for this species, apparently used it as a substitute for Bongard's earlier name since the latter was a later honorum of the Eriocaulon umbellatum of Lamarck as well as of that of H.B.K. It would appear to me, therefore, that the type of Bongard's name remains the type also of Körnicke's name and of his Paepalanthus helminthorrhizus var. ♀, the typical variety, although G. Gardner 5264 and J. E. Pohl 3302 have in the past been regarded as ootypes of the latter variety, for which he cites these collections and an unnumbered Riedel collection from the Berlin herbarium. This Riedel collection is ascribed by Ruhland (1903) to Rio Grande do Sul, but K. Emrich, in a letter to me dated January 30, 1950, asserts that it is from Mato Grosso since Riedel never collected in Rio Grande do Sul.

Körnigke's original description of his var. σ is: "foliis caulinis pilis brevibus arrectis puberulis vel pubescentibus demum calvis" and cites for it "in Brasilia orientali: Sellow; in prov. Goyazensi: Pohl; e. gr. in paludosis prope Aracoara: Riedel n. 2202." His var. ϕ is described by him as "foliis caulinis pilis patentibus vel patentissime longioribus pubescentibus vel hirsutis. Er. umbellatum Bong., nec Lam. nex HBKth. in paludibus ad ripas Rio Pardo prov. Rio Grande do Sul: Riedel; in prov. Minarum: Gardner n. 5264; in prov. Goyazensi inter praedia Alegras et Trindade: Pohl n. 3302."

Recent collectors describe S. helminthorrhizus as an herb, with its inflorescences 85—100 cm. tall, bearing "gray-green" heads. They have found it growing in brejo, swamps, and marshes, in low wet ground in cerrado on hills, and in gallery margins in areas of gallery forest and adjacent wet campo, at altitudes of 975—1300 meters, flowering and fruiting from July to October (also in flower in May). Silveira (1928) cites A. Silveira h23 from Itapetinga, São Paulo, collected in 1887.

The Eriocaulon umbellatum, referred to in the synonymy above, is a synonym of Syngonanthus umbellatus (Lam.) Ruhl., while that of Humboldt, Bonpland, & Kunth is in the synonymy of what we now know as S. humboldtii (Kunth) Ruhl.

The Angely (1972) work cited in the bibliography above is often listed as "1970", but was not actually published until 1972.

Ruhland (1903) cites the following collections for S. helminthorrhizus: Goiás: Glaziou 22313, J. E. Pohl 3302. Minas Gerais: G. Gardner 5264. Mato Grosso: L. Riedel s.n. São Paulo: Burchell 5206, Löfgren 156, L. Riedel 2202, Sellow 5470. He comments that "Specimina a cl. Glaziou sub n. 22313 collecta foliis caulinis longissimis, perrobustius a ceteris abhorrent".

The S. glandulosus Herzog, sometimes regarded as a synonym of the typical form of S. helminthorrhizus, is actually a synonym of its var. glandulosus Moldenke, which see.

Material of S. helminthorrhizus has been misidentified and distributed in some herbaria as S. glandulosus Herzog and as Paepalanthus sp.

Additional & emended citations: BRAZIL: Distrito Federal: Irwin, Grear, Souza, & Reis dos Santos 18162 (Ld, N, W—2759030); Irwin, Souza, & Reis dos Santos 8870 (N, W—2759029, Z). Goiás: Hatschbach 34593 (Ld); Macedo 1903 (S, S, S), 3341 (S, S); J. E. Pohl 3302 [N. Y. Bot. Gard. Type Photo New Ser. 8836] (Mu, Mu, Mu, N—photo, Z—photo); Ule 235 (P). Mato Grosso: Archer & Gehrt 185 [Herb. Inst. Bot. S. Paulo 36369] (W—1740840); Hatschbach 24559 (Ac, N, S, W—2706888), 32346 (Ld); Rombouts s.n. [Solos 241; Herb. Inst. Agron. S. Paulo 2752] (W—1459657). Minas Gerais: G. Gardner 5264 [Macbride photos 10688] (N, N—photo, W—photo); Hatschbach

27376 (Ft, S). São Paulo: Löfgren 156 (P); L. Riedel 2202 (B, M, N—photo, S, Ut—405, Z—photo); Sellow 5470 (B). PARAGUAY: Hassler 11427 (Ca—929865, Mi, N, V—13030, W—2055485). MOUNTED ILLUSTRATIONS: Körn. in Mart., Fl. Bras. 3 (1): pl. 60, fig. 4 (B, N, Z), n. 187 (B); drawings by Körnicke (B).

SYNGONANTHUS HELMINTHORRHIZUS var. GLANDULOSUS Moldenke, Phytologia 10: 489. 1964.

Synonymy: Syngonanthus glandulosus Herzog ex Moldenke, Résumé 351, in syn. 1959. Syngonanthus glandulosa Herzog ex Moldenke, Résumé 351, in syn. 1959 [not S. glandulosus Gleason, 1929].

Bibliography: Moldenke, Résumé 351. 1959; Moldenke, Phytologia 10: 489. 1964; Moldenke, Résumé Suppl. 11: 5. 1964; J. A. Clark, Card-Ind. Gen. Sp. & Var. Fl., issue 246. 1965; Hocking, Excerpt. Bot. A.9: 290. 1965; Moldenke, Biol. Abstr. 46: 3616. 1965; Schubert, Assoc. Trop. Biol. Bull. 5: 68. 1965; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 636 & 963. 1971; Moldenke, Phytologia 31: 408. 1975.

Herzog's S. glandulosus apparently is based on Brade 6585 from the Horto Oswaldo Cruz at Butantan, São Paulo, Brazil, was collected there in September, 1921, and is deposited in the Munich herbarium where it was photographed by Macbride as his type photograph number 18743; it is inscribed "Syngonanthus glandulosus Herzog n. sp. ad interim". My variety, on the contrary, is based on Héringer 1340/534 from the mata at Horto de Guará, Brasília, in the Distrito Federal, collected on May 17, 1961, and deposited in my personal herbarium.

Irwin and his associates refer to this variety as a rosette herb, the inflorescences to 1 m. tall, and the heads whitish. They encountered it in gallery forests at 1100 m. altitude, in flower and fruit in September.

Citations: BRAZIL: Distrito Federal: Héringer 8340/534 (Z—type); Irwin, Souza, & Reis dos Santos 8105 (N, N); Prance & Silva 59041 (N, S). São Paulo: Brade 6585 [Macbride photos 18743] (Mu, N, N—photo, W—photo).

XSyNGONANTHUS HESSII Moldenke, Phytologia 5: 341. 1956.

Synonymy: Syngonanthus angolensis H. Hess x S. poggeanus Ruhl. ex H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 195. 1955. "x (S. angolensis x S. poggeanus) H. Hess" apud Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1955, p. 30. 1956. Syngonanthus angolensis x poggeanus H. Hess apud Moldenke, Phytologia 5: 341, in syn. 1956.

Bibliography: H. Hess, Bericht. Schweiz. Bot. Gesell. 65: 195 & 198, fig. 5. 1955; Moldenke, Phytologia 5: 341. 1956; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1955, p. 30 (1956) and 1956, p. 28. 1957; Moldenke, Résumé 147, 351, & 492. 1959; G. Taylor, Ind. Kew. Suppl. 13: 132. 1966; Moldenke, Fifth Summ. 1: 244 (1971) and 2: 635 & 963. 1971; Moldenke, Phytologia 34: 278 (1976) and 35: 314. 1977.

Illustrations: H. Hess, Bericht. Schweitz. Bot. Gesell. 65: 198, fig. 5. 1955.

Hess (1955) describes this natural hybrid as follows: "Folia aequalia illis parentium, glabra vel adpresso-pilosa vel pilis glanduliferis patentibus puberula. Vaginae plus minusve glanduloso-pilosae, saepe subglabrae. Culmi intermedii, 0,2—1 mm longi, capitula versus praesertim dense pilosi, sed saepe glaberrimi (culmo rotundo, non striato). Capitula subaequalia illis S. angolensis. Bracteae involucrantes albae vel flavescentes vel dilute fuscae. Sepala ♀ floris 2,3—2,7 mm longa, dorsaliter et ventraliter sparse usque dense pilosa, saepe glaberrima. Sepala ♂ floris intermedia, basi flavescentia usque albida. Pubescentia similis illi S. angolensis, plerumque parcius. Plantae normaliter fertiles."

He comments further that "Die Blätter sind von gleicher Form und Grösse wie die der Eltern; sie sind kahl, angedrückt behaart oder auch abstehend drüsenhaarig. Die Scheiden sind $\frac{1}{2}$ dicht mit abstehenden Drüsenhaaren besetzt, oft fast kahl. An den Halmen gibt es alle Übergänge zwischen dicht drüsenhaarigen und fast kahlen Exemplaren; dabei schwankt auch die Länge der Drüsenhaaren zwischen 0,2—1 mm. Die obersten Zentimeter unter den Blütenkopf sind bei Syngonanthus Poggeanus und S. Wahlbergii besonders dicht mit Drüsen- und Spitzhaaren besetzt. An den Nastarden ist dies auch zu beobachten, doch ist dieser Teil oft auch vollständig kahl. Die Blütenköpfe sind ungefähr gleich gross wie bei S. angolensis. Die Hüllbrakteen sind weiss, gelblich oder hellbraun. Die Sepalen der ♀ Blüten sind 2,3—2,7 mm lang, dorsal un ventral zerstreut bis dicht behaart, oft auch ganz kahl. Die Sepalen der ♂ Blüten sind in der Grösse ebenfalls intermediär, am Grunde gelblich bis weiss. Die Behaarung ist wie bei S. angolensis, jedoch meist spärlich. Die Pflanzen sind normal fertil."

He bases the hybrid on H. Hess 52/615, 52/2089, 52/2107, & 58/2113 from Bié, Angola, at 1100—1360 m. altitude, flowering in February and June. Its habitat is "Mit denen von Syngonanthus angolensis übereinstimmend und mit diesen gemeinsam vorkommend".

Variations, he says, "Ergeben sich aus der Bastardnatur und sind in der Diagnose rücksichtigt". Its distribution is "Angola: Im Baixo Cubango und an den Seitenflüssen des Rio Cubango, am Rio Cuatir und am Rio Quiriri". Interestingly, he asserts that "Der einer Elter, Syngonanthus Poggeanus, findet sich nicht unter dem gesammelten Material aus Angola. Der locus classicus dieser Art liegt aber nördlich des Baixo Cubango." This admission that only one of the putative parental species occurs with the hybrid is remarkable. If this situation is widespread in this family, it is most probable that many such hybrids will be discovered among the "variant" specimens now assigned tentatively to so many taxa in the group in the New World.

As far as we know, this hybrid is represented in herbaria only by the original collections.

SYNGONANTHUS HETEROPELOIDES Herzog in Fedde, Repert. Spec. Nov. 29: 211--212, pl. 120. 1931.

Bibliography: Herzog in Fedde, Repert. Spec. Nov. 29: 211--212, pl. 120, fig. k--m. 1931; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 20. 1939; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Alph. List Cit. 3: 975. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65, 92, & 213. 1949; Moldenke, Phytologia 4: 320. 1953; Moldenke in J. A. Steyerl., Fieldiana Bot. 28: 824. 1957; Moldenke, Résumé 69, 73, 107, & 492. 1959; Moldenke, Résumé Suppl. 4: 4. 1962; J. A. Steyerl., Act. Bot. Venez. 1: 247. 1966; Moldenke, Résumé Suppl. 16: 5. 1968; Moldenke, Fifth Summ. 1: 120, 127, & 174 (1971) and 2: 963. 1971; Moldenke, Phytologia 33: 138. 1976.

Illustrations: Herzog in Fedde, Repert. Spec. Nov. 29: pl. 120, fig. k--m. 1931.

This species is based on Lützelburg 21991 from on sand at Manaos, Amazonas, Brazil, deposited in the Munich herbarium; an isotype, also in the Munich herbarium, was photographed there by Macbride as his type photograph number 18745. Herzog (1931) says of this species: "Diese Art steht durch den Bau der ♀ Blüten das Fehlen der Bracteae stipantes und manche andere Züge dem S. heteropeplus nahe unterscheidet sich aber die ganz kahlen Kelchblätter der ♂ und ♀ Blüten ferner durch den Zuschnitt der Sepalen, die bei S. heteropeplus wesentlich schmaler und fast röhrig zugespitzt sind, die Petalen die bei unserer neuen Art deutlich schmaler und viel schwächer behaart sind, und schliesslich durch die perinteren Grössem Unterschiede obwohl zwischen ♂ und ♀ Blüten, wie auch zwischen Sepalen und Petalen der ♀ Blüten."

Recent collectors have encountered this plant in moist open sandy areas and in wet ground along streams at the base of Mauritia palms, at 100--200 m. altitude, in flower in July, September, and October. Wurdack and his associates found it locally frequent on savannas.

The Schultes & Cabrera 17564, distributed as S. heteropeplodes, actually represents, instead, S. huberi Ruhl., while Schultes, Baker, & Cabrera 17987 and Schultes & Cabrera 17586 are Paepalanthus saxicola var. conicus Moldenke.

Additional citations: VENEZUELA: Amazonas: Maguire, Wurdack, & Keith 41807 (N); Maguire, Wurdack, & Maguire 41630 (N, S); Wurdack & Adderley 43707 (N, S). BRAZIL: Amazonas: Lützelburg 21991 [Macbride photos 18745] (Mu--type, N--photo of isotype, W--photo of isotype, Z--isotype).

SYNGONANTHUS HETEROPEPLUS (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 248. 1903.

Synonymy: Paepalanthus heteropeplus Körn. in Miq., Ann. Mus. Lugd. Bat. 3: 238. 1867.

Bibliography: Körn. in Miq., Ann. Mus. Lugd. Bat. 3: 238. 1867;

Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30): 244, 248, 290, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Herzog in Fedde, Repert. Spec. Nov. 29: 210—211. 1931; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 7, 49, & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 68 & 213. 1949; Moldenke, Résumé 78, 325, & 492. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Fifth Summ. 1: 134 (1971) and 2: 584 & 963. 1971.

This species is based on Mélinon 338 from French Guiana, deposited in the herbarium of the Muséum National d'Histoire Naturelle in Paris and is thus far known only from the original collection. Ruhland (1903) says of it "Species sepali floris ♀ discum longe superante valde insignis esse dicitur. Ego eam non vidi."

The Lützelburg 20800, 20875, & 21035a, distributed as S. heterocephalus, actually are S. simplex var. appendiculifer Ruhl.

SYNGONANTHUS HETEROPHYLLUS Alv. Silv., Fl. Mont. 1: 369—370, pl. 234. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 369—370 & 418, pl. 234. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 478. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Résumé 107 & 492. 1959; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 963. 1971; Moldenke, Phytologia 35: 348. 1977.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 234. 1928.

This species is based on A. Silveira 548 from "In campis arenosis prope Itacambira", Minas Gerais, Brazil, collected in July, 1926, and deposited in the Silveira herbarium. In his text Silveira (1928) refers to "Tabula CCXXXV" as illustrating this species, but the illustration itself is labeled "TABULA CCXXXIV" — plate 235 actually depicts S. angustifolius Alv. Silv. He says of S. heterophyllum: "Species a S. elegans (Bong.) Ruhl. cauli hypogeo paullo elongato, capitulis minoribus et bracteis involu- crantibus pallidioribus differt".

SYNGONANTHUS HETEROTRICHUS Alv. Silv., Fl. Serr. min. 73, pl. 29. 1908.

Bibliography: Alv. Silv., Fl. Serr. Min. 73, pl. 29. 1908; Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 5. 1924; Alv. Silv., Fl. Mont. 1: 311—313, pl. 197, 198, & 209. 1928; Stapf, Ind. Lond. 6: 248. 1931; A. W. Hill, Ind. Kew. Suppl. 8: 231. 1933; Wangerin in Just, Bot. Jahresber. 57 (1): 478. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Alph. List Cit. 3: 935. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Phy-

tologia 4: 320. 1953; Moldenke, Résumé 108 & 492. 1959; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 963. 1971; Moldenke, Phytologia 35: 425. 1977.

Illustrations: Alv. Silv., Fl. Serr. Min. pl. 29. 1908; Alv. Silv., Fl. Mont. 1: pl. 197, 198, & 209. 1928.

This species is based on A. Silveira 379 from "In cacumine montis, Morro do Breu, campis uliginosis, et aliis locis uvidis in Serra do Cipó", Minas Gerais, Brazil, collected in April, 1905, and deposited in the Silveira herbarium. Thus far it is known only from the original collection. It apparently bears a striking superficial resemblance to S. chapadensis Alv. Silv.

Citations: BRAZIL: Minas Gerais: A. Silveira 379 [Herb. Marie-Victorin 12437] (B--isotype, Z--isotype, Z--photo of isotype).

SYNGONANTHUS HIRTELLUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 252. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 244, 252, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Résumé 108 & 492. 1959; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 963. 1971.

This species is based on Glaziou 15514 from Itacolomy, near Ouro Preto, Minas Gerais, Brazil, flowering in June, and deposited in the Berlin herbarium. It is thus far known only from the original collection and Ruhl. (1903) notes that the "Species cum S. gracili peraffinis". He distinguishes the two as follows:

1. "Folia anguste vel setaceo-linearía, glabra vel pilosula; bracteae involucrantes apice rotundato-obtusae". S. gracilis.
- 1a. "Folia plana, latiuscule linearía, hirtella; bracteae involucrantes acutiusculae".....S. hirtellus.

SYNGONANTHUS HONDURENSIS Moldenke, Phytologia 1: 344--345. 1939.

Bibliography: Moldenke, Phytologia 1: 344--345. 1939; Moldenke, Carnegie Inst. Wash. Publ. 522: 146. 1940; Moldenke, Known Geogr. Distrib. Erioc. 4 & 58. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 224. 1947; Moldenke, Alph. List Cit. 3: 777. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 37 & 213. 1949; Standl. & Steyerl., Fieldiana Bot. 24: 378 & 379. 1958; Moldenke, Résumé 43 & 492. 1959; Moldenke, Fifth Summ. 1: 82 (1971) and 2: 963. 1971; Moldenke, Phytologia 35: 306. 1977.

Citations: BELIZE: O'Neill 8543 (I--isotype, M--type, N--isotype).

SYNGONANTHUS HUBERI Ruhl. in Engl., Pflanzenreich 13 (4-30): 266. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 264, 266, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 418. 1928; Gleason, Bull. Torrey Bot. Club 58: 327. 1931; Moldenke, Alph. List Cit. 1: 132. 1946; Moldenke, Known Geogr. Distrib. Erioc. 5, 18, & 58. 1946; Moldenke, Phytologia 2:

493. 1948; Moldenke, Alph. List Cit. 3: 945 (1949) and 4: 1005 & 1075. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 61, 92, 95, & 213. 1949; Moldenke, Phytologia 4: 320—321. 1953; Cuatrecas., Revist. Acad. Colomb. Cienc. 10: 254. 1958; Moldenke, Résumé 69, 76, 108, 112, & 492. 1959; Hocking, Excerpt. Bot. A. 4: 284. 1962; Moldenke, Phytologia 19: 43. 1969; Moldenke, Fifth Summ. 1: 120, 131, 174, & 180 (1971) and 2: 963. 1971; Moldenke, Phytologia 23: 417 (1972), 33: 480 (1976), 34: 259 (1976), 35: 292, 317, & 346 (1977), and 36: 65, 66, & 470. 1977.

This species is based on J. Huber 173, collected in June, 1896, at "Rio Arary, in lichte[m] Camposwald auf Sand", on Marajo island in the mouth of the Amazon river, Brazil, deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10689. Ruhland (1903) cites only the one collection and says that the species "cum S. philodicoidi valde affinis foliis latoribus, bracteis involucrantibus et flores stipantibus glabris, appendicibus styli nullus ab illo differt".

Recent collectors refer to S. huberi as a herbaceous aquatic plant, to 15 cm. tall, with white inflorescences and flowers, and have found it growing in and under water, in open sandy swamps, in dense forests, on sandy savannas with a quartzite base, and in rapids, at altitudes of 200—500 meters, flowering from January to March and June to November, and fruiting from January to March as well as in July and August. Ramos reports encountering it in a "forest on high river banks, flowering just above water level". Agostini refers to it as "hierba en lecho de quebrada seca". Goodland found it growing along with Philodice hoffmannseggi Mart. and Eriocaulon guyanense Körn. in a "marsh with open hog-wallowed impeded drainage by mottled clay pan, about 6 inch top and 6 inch light gray sand, in grassland with scattered trees, the dominant being Curatella, Byrsonima, Trachypogon, and Fimbristylis". Cowan & Soderstrom call it a "locally common herb in boggy patches atop rocks in constant mist from falls". Campbell and his associates collected it "in cracks of exposed rock in debris".

Silveira (1928) cites Huber 436 from Marajo island. The species in many respects greatly resembles S. anomalus (Körn.) Ruhl. and S. macrocaulon Ruhl. Material has been misidentified and distributed in some herbaria as those species as well as Eriocaulon sp., S. glandulosus Gleason, S. glandulosus var. epapillosus Moldenke, Podostemaceae, and even Potamogetonaceae. On the other hand, the Egler & Murça Pires 47724, Murça Pires & Cavalcante 52413, Schultes, Baker, & Cabrera 18442, and A. C. Smith 2112, distributed as S. huberi, actually are S. macrocaulon Ruhl. The Ratter, Santos, Souza, & Ferreira R.1723, cited below, is a mixture with the type of f. viviparus Moldenke.

Additional citations: COLOMBIA: Meta: Killip 34259 (N, S). Vaupés: I. Cabrera 19702 (Ss); Schultes & Cabrera 13109 (Ss, W—2171099), 13192 (Ss), 14412 (Ss, W—2171416), 17240 (Ss), 19702 (N). VENEZUELA: Bolívar: Agostini 264 (N); Hamann 2895 (Hm).

GUYANA: Cowan & Soderstrom 2154 (Fg, N); Goodland 302 in part (Ld, W--2546172). BRAZIL: Amazonas: Prance, Maas, Atchley, Steward, Woolcott, Coêlho, Monteiro, Pinheiro, & Ramos 14426 (Ld); G. H. H. Tate 123 (N). Mato Grosso: Ratter, Santos, Souza, & Ferreira R. 1723 in part (Z). Pará: Campbell, Ongley, Ramos, Monteiro, & Nelson P.22433 (Ld); Lützelburg 23182 (Mu). MARAJO ISLAND: Huber 173 [Macbride photos] (B--type, N--photo of type, W--photo of type).

SYNGONANTHUS HUBERI f. VIVIPARUS Moldenke, Phytologia 33: 480. 1976.

Bibliography: Moldenke, Phytologia 33: 480 (1974), 34: 259 (1976), and 36: 66. 1977.

Material of this taxon has been misidentified and distributed in some herbaria as S. glandulosus var. epapillosus Moldenke.

The type collection is a mixture with typical S. huberi Ruhl.

Citations: BRAZIL: Mato Grosso: Ratter, Santos, Souza, & Ferreira R.1723 in part (N--type).

SYNGONANTHUS HUBERTI Moldenke, Phytologia 3: 424--425. 1951.

Bibliography: Moldenke, Phytologia 3: 424--425 (1951) and 4: 321. 1953; Moldenke in Humbert, Fl. Madag. 36: 30, 31, & 36--37, fig. 18--24. 1955; Moldenke, Résumé 156 & 492. 1959; G. Taylor, Ind. Kew. Suppl. 12: 138. 1959; Moldenke, Fifth Summ. 1: 262 (1971) and 2: 963. 1971.

Illustrations: Moldenke in Humbert, Fl. Madag. 36: 31, fig. 18--24. 1955.

Additional citations: MADAGASCAR: Humbert 3487 (N--photo of type, Z--photo of type).

SYNGONANTHUS HUMBOLDTII (Kunth) Ruhl. in Engl., Pflanzenreich 13 (4-30): 262--263. 1903.

Synonymy: Eriocaulon umbellatum H.B.K., Nov. Gen. & Sp. Pl., ed. quart., 1: 252. 1816 [not E. umbellatum Bong., 1831, nor Lam., 1789]. Eriocaulon umbellatum Humb. & Bonpl. apud Roem. & Schult. in L., Syst. Veg., ed. 15 nova, 2: 867--868. 1817. Paepalanthus humboldtii Kunth, Enum. Pl. 3: 535. 1841. Eriocaulon umbellatum Humb. & Kunth ex Kunth, Enum. Pl. 3: 535 & 614, in syn. 1841. Eriocaulon humboldtii Kunth ex D. Dietr., Syn. Pl. 5: 263. 1852 [not E. humboldtii Kunth, 1841]. Eriocaulon bonplandianum Steud., Syn. Pl. Glum. 2: [Cyp.] 275. 1855. Dupatya humboldtii (Kunth) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatya humboldtii Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus humboldtii Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus humboldtii (Kunth) Ruhl. apud Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 20, ephalm. 1939. Syngonanthus humboldtii Rupr. ex Moldenke, Résumé Suppl. 1: 23, in syn. 1959.

Bibliography: H.B.K., Nov. Gen. & Sp. Pl., ed. quart., 1: 252-253 (1816) and ed. folio, 1: 201. 1816; Roem. & Schult. in L.,

Syst. Veg., ed. 15 nova, 2: 867—868. 1817; Kunth, Enum. Fl. 3: 535 & 625. 1841; Klotzsch in Schomb., Faun. & Fl. Brit.-Guian. 1116. 1848; D. Dietr., Syn. Pl. 5: 263. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 275, 333, & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 279, 447—448, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 877 & 879 (1893) and imp. 1, 2: 402. 1894; Barnhart, Bull. Torrey Bot. Club 29: 585—598. 1902; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 246, 262—263, 284, 287, 290, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 20. 1939; Moldenke in Gleason & Killip, Brittonia 3: 159. 1939; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 877 & 879 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 5, 6, 30, 33, 41, 49, & 58. 1946; Moldenke, Alph. List Cit. 1: 92 & 132 (1946), 2: 557 (1948), 3: 975 (1949), and 4: 985. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 61, 65, & 213. 1949; Moldenke, Phytologia 4: 321. 1953; Cuatrecas., Revist. Acad. Colomb. Cienc. 10: 255. 1958; Moldenke, Résumé 69, 73, 280, 286, 293, 325, & 492. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé Suppl. 1: 23. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 877 & 879 (1960) and imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 4: 5 (1962) and 18: 12. 1969; Oberwinkler, Pterid. & Sperm. Venez. 8 & 52. 1970; Moldenke, Fifth Summ. 1: 120, 127, & 481 (1971) and 2: 494, 503, 515, 584, 637, & 963. 1971; Moldenke, Phytologia 23: 418 (1972) and 25: 244. 1973; J. A. Steyerl., Biotropica 6: 10. 1974; J. A. Steyerl., Act. Bot. Venez. 10: 226 & 232. 1975; Moldenke, Phytologia 34: 257 & 277 (1976), 35: 343, 452, & 453 (1977), and 36: 35 & 65. 1977.

This species is based on a Humboldt & Bonpland collection [Herb. Willdenow 2375] from "In ripa Orinocensi, prope Maypures et rupem Aricagua, locis calidis", Amazonas, Venezuela, deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10664. Kunth's Paepalanthus humboldtii (1841) is obviously only a new name for Bongard's homonymous Eriocaulon umbellatum (1831) and therefore has the same type; in fact, the Humboldt & Bonpland collection is the only one cited by Kunth. The Eriocaulon humboldtii Kunth (1841) to which Dietrich (1852) refers H.B.K.'s E. umbellatum, is a very different taxon, being a valid species of Eriocaulon based on an entirely different type. The E. umbellatum of Bongard is a synonym of Syngonanthus helminthorrhizus (Mart.) Ruhl., while the E. umbellatum of Lamarck is now known as Syngonanthus umbellatus (Lam.) Ruhl.

Ruhland (1903) cites for Syngonanthus humboldtii only the original Humboldt & Bonpland collection. According to the late Dr. J. H. Barnhart (1902) the publication of this species in both the quarto and the folio editions of the H.B.K. work was in 1816, not "1815" as sometimes cited.

Recent collectors have found this species growing on savannas

and riverbanks. Oldenburger and his associates found it "locally common in transition of fine white sand to moist fine sand with clay". Wurdack & Monachino found it "abundant in morichal", while Davidse reports it from on "savannas with scattered trees, including Curatella, and with many large outcroppings of dark-colored boulders" and describe it as "moss-like plants with large umbels of globose inflorescences of white flowers". It has been collected in anthesis in February, May, June, and October and in fruit in February and October, at altitudes of 90—1000 meters.

Garcia Barriga & Jaramillo Mejia 17119 is a mixture with var. glandulosus Gleason and a species of Burmannia. Material of typical S. humboldtii has been misidentified and distributed in some herbaria as var. glandulosus Gleason and as S. fertilis (Körn.) Ruhl. On the other hand, the Hertel & Oberwinkler 15225, Vareschi & Foldats 4576, and Vareschi & Magdefrau 6957, distributed as typical S. humboldtii, actually represent var. glandulosus Gleason, while Vareschi & Magdefrau 6612 is S. bisumbellatus (Steud.) Ruhl.

Additional citations: COLOMBIA: Vaupés: Garcia Barriga & Jaramillo Mejia 17119 in part (N); Humbert & Schultes 27320 (P); Schultes & Cabrera 19918b (W—2113118). VENEZUELA: Amazonas: G. Davidse 2752 (Ld); Humboldt & Bonpland s.n. [Herb. Willdenow 2375; Macbride photos 10664] (N—photo of type, W—photo of type); Vareschi & Magdefrau 6614b (Ve—42516). Apuré: Ramía 1628 (Ve—42810). Bolívar: Agostini 256 (N, Z), 348 (Lw, N); Cardona Puig 2849 (W—2195051); Hamann 2900 (Hm), 2901 (Hm); López-Palacios 3072 (Ld); Schacht s.n. [Canaima, Januar 1973] (Mu); Vareschi s.n. [Herb. Hamann 2899] (Hm); Vareschi & Foldats 4629 (N); Wurdack & Monachino 39948 (Mu, N). State undetermined: Mayeul-Grisol s.n. [7 avril 1921] (B). SURINAM: Oldenburger, Norde, & Schulz ON.558 (N). MOUNTED ILLUSTRATIONS: drawings by Körnicke (B).

SYNGONANTHUS HUMBOLDTII var. ELONGATUS Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 101. 1953.

Bibliography: Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 101. 1953; Moldenke, Phytologia 4: 321. 1953; Moldenke, Résumé 73 & 492. 1959; Moldenke, Fifth Summ. 1: 127 & 963. 1971.

This variety differs from the typical form of the species in having its branches 30—50 cm. long, with 14—21 whorls of leaves, many of the upper whorls producing 1, 2, or more secondary branches. Thus far, it is known only from the original collection, Maguire, Cowan, & Wurdack 30558, from a savanna at 125 m. altitude in the Cerro Yapacana on the Río Orinoco, Amazonas, Venezuela, deposited in the Britton Herbarium at the New York Botanical Garden.

SYNGONANTHUS HUMBOLDTII var. GLANDULOSUS Gleason, Bull. Torrey Bot. Club 58: 327. 1931.

Synonymy: Syngonanthus humboldtii var. glandulosus Gleason ex Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 101, sphalm. 1953.

Bibliography: Gleason, Bull. Torrey Bot. Club 58: 327. 1931; Fedde & Schust. in Just, Bot. Jahresber. 59 (2): 20. 1939; Moldenke in Gleason & Killip, Brittonia 3: 159. 1939; Moldenke, Alph. List Cit. 1: 92. 1946; Moldenke, Known Geogr. Distrib. Erioc. 6. 1946; Moldenke, Alph. List Cit. 2: 557 (1948), 3: 975 (1949), and 4: 985. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65 & 213. 1949; Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 101. 1953; Moldenke, Phytologia 4: 321. 1953; Moldenke, Résumé 69, 73, & 492. 1959; Moldenke, Fifth Summ. 1: 120 & 129 (1971) and 2: 963. 1971; Moldenke, Phytologia 23: 418. 1972; J. A. Steyererm., Biotropica 6: 10. 1974; J. A. Steyererm., Act. Bot. Venez. 10: 226 & 232. 1975; Moldenke, Phytologia 34: 277 (1976) and 36: 35 & 65. 1977.

This variety differs from the typical form of the species in having the peduncles softly glandular-villous, the stems elongated, very slender, glabrous or puberulent at the summit, the leaves fascioled, very narrowly linear, lanate at the base, and the peduncles elongate and numerous.

The variety is based on G. H. H. Tate 315 from moist parts of the Grand Savanna, Esmeralda, Amazonas, Venezuela, deposited in the Britton Herbarium at the New York Botanical Garden. Gleason (1931) adds that "The basal leaves are 15--25 mm. long and 3 to 4 times as long as the cauline" ones. The statement made in my 1953 publication that Tate 1308 is the type collection of this variety is erroneous.

Recent collectors have found the plant growing on savannas and morichal, campo cerrado, lowland savannas, quartzite savannas, along the banks of streams, in wet places and waterholes, in moist soil pockets, the moist parts of savannas, periodically flooded savannas on sand, on savannas over igneous rock, and in white sand generally, at altitudes of 15--1300 meters, flowering from September to January, March, April, June, and July, and in fruit in March, April, June, July, September, and November. Maguire and his associates report it as "infrequent" or "a common annual of damp sandy places on savannas", "locally frequent", "abundant on sabanitas", and "a dominant savanna herb common on wet savannas". Collectors describe the heads as white or ashy-gray and the flowers themselves as whitish.

Foldats 3536 bears a striking resemblance to S. fertilis (Körn.) Ruhl., an obviously closely related species. Material of S. humboldtii var. glandulosus has been widely misidentified and distributed in herbaria as the typical form of S. humboldtii (Kunth) Ruhl. On the other hand, the Wurdack & Monachino 39948, distributed as var. glandulosus, actually seems to represent the typical form. Cordeiro 31 is a mixture with S. glandulosus Gleason.

Additional citations: COLOMBIA: Vaupés: García Barriga & Ja-

ramillo Mejia 17119 in part (W-2569463A); Schultes, Baker, & Cabrera 18230 (Ss), 18534 (Ss, W-2172194). VENEZUELA: Amazonas: Foldats 3536 (N); Holt & Gehriger 234 [Herb. Leonard 7662] (B, W-1471944); Maguire, Wurdack, & Bunting 36389 (N); Maguire, Wurdack, & Maguire 41658 (N, S); J. A. Steyermark 105144 (Ac); Steyermark & Bunting 102661 (Ft); G.H. H. Tate 315 (N-type). Bolívar: Hamann 2902 (Hm), 2903 (Hm), 2904 (Hm); Hertel & Oberwinkler 16225 (Mu); Killip 37355 (Ve); Koyama & Agostini 7273 (N, N, N, S), 7351 (N, N, S), 7516 (N, N, N), 7528 (N, N, N); B. Maguire 33698 (N), 33699 (N); Schacht s.n. [Canaima, Januar 1937] (Mu); J. A. Steyermark 75264 (Z), 94182 (Lw, Mu, N); Steyermark & Wurdack 21 (Mu, N); Vareschi & Foldats 4576 (Ve-40470); Vareschi & Magdefrau 6957 (Ve-42506); Wurdack & Monachino 39948 (S, S). Guárico: Tamayo 3998 (W-2195276). BRAZIL: Amazonas: Prance, Maas, Woolcott, Monteiro, & Ramos 16185 (Ld, Mu, N, W-2759068). Mato Grosso: Cordeiro 31 in part (Ld). Rondônia: Ribeiro 1103 [Herb. IPEAN 149794] (Ld).

SYNGONANTHUS HUMBOLDTII var. MACROCEPHALUS Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 101. 1953.

Bibliography: Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 101. 1953; Moldenke, *Phytologia* 4: 321-322. 1953; Moldenke, *Résumé* 73 & 492. 1959; Moldenke, *Fifth Summ.* 1: 127 (1971) and 2: 963. 1971.

This variety differs from the typical form of the species in having the flower-heads 7-9 mm. wide and the peduncles rather densely whitish-pilose, the hairs irregularly appressed, often twisted, not gland-tipped. It is based on Maguire & Politi 27649 from "in depressions in rocks" on the southeast slopes of North Mountain, Cerro Sipapo (Paraque), Amazonas, Venezuela, at an altitude of 5000-6000 feet, collected on December 12, 1948, and deposited in the Britton Herbarium at the New York Botanical Garden.

SYNGONANTHUS HUMBOLDTII var. ORINOCENSIS Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 102. 1953.

Bibliography: Moldenke in Maguire & al., Mem. N. Y. Bot. Gard. 8: 102. 1953; Moldenke, *Phytologia* 4: 322. 1953; Moldenke, *Résumé* 73 & 492. 1959; Moldenke, *Fifth Summ.* 1: 127 (1971) and 2: 963. 1971.

This variety differs from var. glandulosus Gleason in being stouter in stature, with the basal leaves 3-8 cm. long and those of the cauline whorls to 2.3 cm. long.

It is based on B. Maguire 29340 from "under thickets on moist white sand about borders of small 'laja', Río Temi, one hour below Yavita, Río Stabapo", on the Río Orinoco, Amazonas, Venezuela, collected on October 20, 1950, and deposited in the Britton Herbarium at the New York Botanical Garden. Thus far it is known only

from the original collection.

SYNGONANTHUS HYBRIDUS Moldenke, Phytologia 5: 341. 1956.

Synonymy: "[Syngonanthus angolensis H. Hess x S. wahlbergii (Wikstr.) Ruhl.]" H. Hess, Bericht. Schweitz. Bot. Gesell. 65: 197, fig. 6. 1955. Syngonanthus angolensis x wahlbergii H. Hess ex Moldenke, Phytologia 5: 341, in syn. 1956. x(S. angolensis x S. wahlbergii) H. Hess apud Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1955: 30. 1956.

Bibliography: H. Hess, Bericht. Schweitz. Bot. Gesell. 65: 197, fig. 6. 1955; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1955: 30. 1956; Moldenke, Phytologia 5: 341. 1956; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Index 1956: 28. 1957; Moldenke, Résumé 147, 351, & 492. 1959; G. Taylor, Ind. Kew. Suppl. 13: 132. 1966; Moldenke, Fifth Summ. 1: 244 (1971) and 2: 635 & 963. 1971; Moldenke, Phytologia 34: 278 (1976) and 35: 314. 1977.

Illustrations: H. Hess, Bericht. Schweitz. Bot. Gesell. 65: fig. 6. 1955.

This hybrid is based on H. Hess 52/2147 from "Am Rio Quangué, 5 km westlich der Mission Galangue", at 1450 m. altitude, northeast Huila, Angola, collected on July 6, 1952, and H. Hess 52/2085 from "Am Rio Cuatir, 30 km östlich Vila Serpa Pinto (Menongue)", at 1360 m. altitude, Bié, Angola, collected on June 27, 1952.

Hess describes this natural hybrid as follows: "Folia similia illis S. wahlbergii. Culmi intermedii, 2-15; pilis glanduliferis, brevibus, paucis. Capitula flavescentia usque fusca. Sepala ♀ floris 1,8 mm longa, flavescentia vel fusca, medio dorsaliter et ventraliter sparse usque dense pilosa. Sepala ♂ floris circ. aequilonga, pubescentia intermedia. Plantae normaliter fertiles.

"Die Blätter gleichen denen von Syngonanthus wahlbergii. Die Halme sind in der Höhe intermediär, ihre Zahl schwankt zwischen 2 und 15. Die Drüsenhaare sind kurz und stehen nicht dicht. Die Blütenköpfe sind gelblich bis braun. Die Sepalen der ♀ Blüten sind um 1,8 mm lang, gelblich oder braun, im mittleren Drittel dorsal und ventral zerstreut bis dicht behaart. Die Sepalen der ♂ Blüten sind etwa gleich so lang und weisen dieselbe intermediär Behaarung auf. Die Pflanzen sind normal fertil." He further notes: "Standorte: Mit denjenigen von Syngonanthus angolensis übereinstimmend und von dieser Art begleitet. Varianten: Ergeben sich aus Bastardnatur und sind in der Diagnose berücksichtigt. Verbreitung: Angola: Im Nord-Osten der Provinz Huila und an einem Nebenfluss des Rio Cubango, am Rio Cuatir, in der Provinz Bié."

This hybrid has been collected in anthesis in June and July, at altitudes of 1360-1450 m. Thus far it is known only from the original collections. The Devred 1872, Welwitsch 2454, and H. Wild 1551 [S. Rhodes. Govt. Herb. 16096], distributed as xS. hybridus, actually are S. ngoweensis H. Lecomte.

SYNGONANTHUS HYGROTICUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 246-247. 1903.

Synonymy: Paepalanthus hygrotrichus Ruhl. ex Moldenke, Résumé Suppl. 1: 21, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 18, 243, 246, & 293. 1903; Pilger in Engl. & Prantl, Nat. Pflanzenfam. Ergänzt. 2, Nachtr. 3 zu 2: 41. 1908; Prain, Ind. Kew. Suppl. 3: 175. 1908; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 56. 1930; Castell. in Descole, Gen. & Sp. Pl. Argent. 3: 76 & 104. 1945; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Phytologia 4: 322. 1953; Moldenke, Résumé 108 & 492. 1959; Moldenke, Résumé Suppl. 1: 21. 1959; Renné, Levant. Herb. Inst. Agron. Minas 72. 1960; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 584 & 963. 1971; Moldenke, Phytologia 35: 305. 1977.

This species is based on three collections from Minas Gerais, Brazil, deposited in the Berlin herbarium where the first of them was photographed by Macbride as his type photograph number 10690: (1) Glaziou 19998 from "dans l'eau des rapides, sur le rocher" at Biribiry near Diamantina, flowering in March; (2) W. Schwacke 8479 from "more Podostemonacearum ad rupas cataract.", Biribiry, in March 1892; and (3) Sena s.n. [Herb. Schwacke 14553] from the Serra do Cipó, flowering in June. Ruhland (1903) comments that the "Caulis basi $\frac{1}{2}$ foliis demudatus ibique in sicco rigidus, flavo-brunneus, circ. 1 mm crassus, vel paullo crassior, $\frac{1}{2}$ angulosus est".

It is perhaps worth mentioning here that Stapf in the Index Londinensis (1931) dates the Pilger reference (1908) as "1906", but on what evidence I do not know.

Thus far this species is known only from the original collections.

Additional citations: BRAZIL: Minas Gerais: Glaziou 19998 [Macbride photos 10690] (B--cotype, N--photo of cotype, W--1124166--cotype, W--photo of cotype).

SYNGONANTHUS IMBRICATUS (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 279. 1903.

Synonymy: Paepalanthus imbricatus Körn. in Mart., Fl. Bras. 3 (1): 430. 1863. Dupatyia imbricata (Körn.) Kuntze, Rev. Gen. Pl. 2: 746. 1891. Dupatyia imbricata Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus imbricatus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 299, 430, 431, & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 276, 279, 290, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 18, 30, 49, & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213.

1949; Moldenke, *Phytologia* 4: 322. 1953; Durand & Jacks., *Ind. Kew. Suppl.* 1, imp. 3, 445. 1959; Moldenke, *Résumé* 108, 280, 325, & 492. 1959; Jacks. in *Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402.* 1960; Tomlinson in C. R. Metcalfe, *Anat. Monocot.* 3: 448. 1969; Moldenke, *Fifth Summ.* 1: 174 & 481 (1971) and 2: 584 & 963. 1971; Moldenke, *Phytologia* 35: 321 & 443. 1977.

This species appears to be based on an unnumbered Blanchet collection from "mont de sable blanc", Bahia, Brazil, deposited as no. 270497 in the Reichenbach herbarium at Vienna; an isotype in the Munich herbarium was photographed there by Macbride as his type photograph number 18746.

Additional citations: BRAZIL: Bahia: Blanchet s.n. [Macbride photos 18746] (Mu--isotype, W--photo of isotype).

SYNGONANTHUS INSULARIS Moldenke, *N. Am. Fl.* 19: 45. 1937.

Bibliography: Moldenke, *N. Am. Fl.* 19: 43 & 45. 1937; Moldenke, *Phytologia* 1: 345. 1939; Alain, *Contrib. Ocas. Mus. Hist. Nat. Coleg. La Salle* 7: 47. 1946; León, *Fl. Cuba, imp. 1, 1: 283 & 435.* 1946; Moldenke, *Alph. List Cit.* 1: 64, 92, & 186. 1946; Moldenke, *Known Geogr. Distrib. Erioc.* 5 & 58. 1946; Hill & Salisb., *Ind. Kew. Suppl.* 10: 224. 1947; Moldenke, *Alph. List Cit.* 2: 648 (1948) and 4: 1259. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 45 & 213. 1949; Moldenke, *Phytologia* 4: 322. 1953; Moldenke, *Résumé* 53, 54, & 492. 1959; Moldenke, *Fifth Summ.* 1: 98 & 99 (1971) and 2: 963. 1971; León & Alain, *Fl. Cuba, imp. 2, 1: 283 & 435.* 1974.

The type of this species is Britton, Britton, & Wilson 44162 from in white sand in the vicinity of Los Indios, Isla de Pinos, Cuba, collected on February 13, 1916, and deposited in the Britton Herbarium at the New York Botanical Garden. The species has been collected in white sand, in moist places on savannas, often in dense clumps on white-sand savannas, flowering in February and December, in fruit in December. Material has been misidentified and distributed in some herbaria as S. lagopodioides (Griseb.) Ruhl.

Additional citations: CUBA: Oriente: Carabia 3731a (Ok). ISLA DE PINOS: Ekman 12095 (B, Ut--23744A), 12522 (B, Ba); Killip 42853 (Le), 43684 (N, S), 44564 (N, Z), 45613 (Mu, N, N, Sm); León & Seifriz 17521 (Mv).

SYNGONANTHUS INUNDATUS (Körn.) Ruhl. in *Engl., Pflanzenreich* 13 (4-30): 267. 1903.

Synonymy: Paepalanthus inundatus Körn. in *Mart., Fl. Bras.* 3 (1): 468--469. 1863. Dupatya inundata (Körn.) Kuntze, *Rev. Gen. Pl.* 2: 746. 1891. Paepalanthus inundatus Körn. apud Jacks. in *Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402, sphalm.* 1894. Dupatya inundata Kuntze apud Durand & Jacks., *Ind. Kew. Suppl.* 1, imp. 1, 445. 1902. Syngonanthus inundatus Ruhl. apud Prain, *Ind. Kew. Suppl.* 3: 175. 1908.

Bibliography: Körn. in *Mart., Fl. Bras.* 3 (1): 468--469 & 507.

1863; Kuntze, Rev. Gen. Pl. 2: 746. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 264, 267, 269, 290, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 18, 30, 49, & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92, 210, 213, & 214. 1949; Moldenke, Phytologia 4: 322. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 99, 108, 280, 487, & 492. 1959; Moldenke, Résumé Suppl. 1: 6, 21, & 25. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 12: 12. 1965; Moldenke, Fifth Summ. 1: 174 & 482 (1971) and 2: 584, 587, 637, & 963. 1971; Moldenke, Phytologia 35: 452. 1977.

This species is based on L. Riedel 2745 from flowing water at Chapadão de São Marcos, Goiás, Brazil, flowering in August, and deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10691. The species bears strong habitual resemblance to S. appressus (Körn.) Ruhl. and S. ferrensis Alv. Silv. Ruhland (1903) cites only the original collection. He mistakenly cites the original publication of Dupatya inundata to page "74" of Kuntze's work (1891) instead of to page 746. In his index (p. 290) he mistakenly lists the species as valid in the genus Paepalanthus.

Additional citations: BRAZIL: Goiás: L. Riedel 2745 [Macbride photos 10691] (B--type, M--isotype, Mu--isotype, N--photo of type, Ut--406--isotype, W--photo of type).

SYNGONANTHUS ITAMBEENSIS Alv. Silv., Fl. Mont. 1: 334--335, pl. 211. 1928.

Synonymy: Syngonanthus itambeënsis Alv. Silv. apud A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938.

Bibliography: Alv. Silv., Fl. Mont. 1: 334--335 & 418, pl. 211. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 478. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 58. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 92 & 213. 1949; Moldenke, Résumé 108 & 492. 1959; Moldenke, Fifth Summ. 1: 174 (1971) and 2: 963. 1971; Moldenke, Phytologia 34: 277. 1976.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 211. 1928.

This species is based on A. Silveira 657 from "In campis arenosis prope Itambé do Serro", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. Silveira (1928) comments that the "Species distinctissima ob capitula magna et bracteae involucrentes pulchre bicolores. A S. anthemidiflora (Bong.) Ruhl. indumento foliorum facile distinguitur". On page 418 of his work he cites the type locality as "Serra de Itambé". Thus far the species is known only from the original col-

lection.

SYNGONANTHUS KUHLMANNII Moldenke, *Phytologia* 3: 277—278. 1950.

Bibliography: Moldenke, *Phytologia* 3: 277—278 (1950) and 4: 322. 1953; E. J. Salisb., *Ind. Kew. Suppl.* 11: 244. 1953; Moldenke, *Résumé* 108 & 492. 1959; Moldenke, *Résumé Suppl.* 1: 6 (1959), 8: 2 (1964), and 16: 6. 1968; Hocking, *Excerpt. Bot. A.* 13: 506. 1968; Moldenke, *Fifth Summ.* 1: 174 (1971) and 2: 963. 1971; Moldenke, *Phytologia* 35: 441. 1977.

The France, Pena, Forero, Ramos, & Monteiro 4790, distributed as S. kuhlmannii, actually is, in part, f. viviparus Moldenke, and in part [4790a] S. densus (Körn.) Ruhl., while Murça Pires, Silva, & Souza 9627 is S. nitens var. hirtulus Ruhl.

Additional citations: BRAZIL: Pará: Sick 702 [*Herb. Brad.* 4619] (Bd).

SYNGONANTHUS KUHLMANNII f. VIVIPARUS Moldenke, *Phytologia* 15: 462. 1968.

Bibliography: Hocking, *Excerpt. Bot. A.* 13: 506. 1968; Moldenke, *Biol. Abstr.* 49: 3245. 1968; Moldenke, *Phytologia* 15: 462. 1968; Moldenke, *Résumé Suppl.* 16: 6. 1968; Moldenke, *Fifth Summ.* 1: 174 (1971) and 2: 963. 1971.

Citations: BRAZIL: Amazonas: France, Pena, Forero, Ramos, & Monteiro 4790a (N--isotype, Z--type).

SYNGONANTHUS LAGOPODIOIDES (Griseb.) Ruhl. in *Urb.*, *Symb. Antil.* 1: 489. 1900.

Additional synonymy: Syngonanthus lagopodioides Ruhl. apud *Thiselt.-Dyer*, *Ind. Kew. Suppl.* 2: 180. 1904.

Bibliography: Griseb., *Cat. Pl. Cub.* 225. 1866; *Sauv.*, *Anal. Acad. Sci. Habana* 8: 50. 1871; *Sauv.*, *Fl. Cub.* 165. 1871; Gomez de la Maza, *Not. Bot. Sist.* 49 & 110. 1893; *Jacks. in Hook. f. & Jacks.*, *Ind. Kew.*, *imp.* 1, 2: 402. 1894; Ruhl. in *Urb.*, *Symb. Antill.* 1: 487 & 489. 1900; Ruhl. in *Engl.*, *Pflanzenreich* 13 (4-30): 245, 257, & 293. 1903; *Thiselt.-Dyer*, *Ind. Kew. Suppl.* 2: 180. 1904; Moldenke, *N. Am. Fl.* 19: 43—45. 1937; Moldenke, *Phytologia* 1: 345. 1939; *Jacks. in Hook. f. & Jacks.*, *Ind. Kew.*, *imp.* 2, 2: 402. 1946; León, *Fl. Cuba*, *imp.* 1, 1: 283 & 435. 1946; Moldenke, *Alph. List Cit.* 1: 24, 63, 64, 66, 91, 92, 412, & 470. 1946; Moldenke, *Known Geogr. Distrib. Erioc.* 5, 50, & 58. 1946; Moldenke, *Alph. List Cit.* 2: 646 & 648—651 (1948), 3: 868, 929, & 930 (1949), and 4: 1094, 1144, & 1304. 1949; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 45, 46, & 213. 1949; Moldenke, *Phytologia* 2: 381 (1951) and 4: 322—323. 1953; Moldenke, *Résumé* 53, 54, 326, 352, & 492. 1959; *Jacks. in Hook. f. & Jacks.*, *Ind. Kew.*, *imp.* 3, 2: 402. 1960; Moldenke, *Phytologia* 18: 92 & 243. 1969; Moldenke, *Fifth Summ.* 1: 98 & 99 (1971) and 2: 585, 637, & 963. 1971; León & Alain, *Fl. Cuba*, *imp.* 2, 1: 283 & 435. 1974; Moldenke, *Phytologia* 33: 184 (1976) and 35: 306 & 313. 1977.

This species is based on C. Wright 3237 from sandy pinewoods in Pinar del Río, Cuba. [to be continued]